

FIG.1

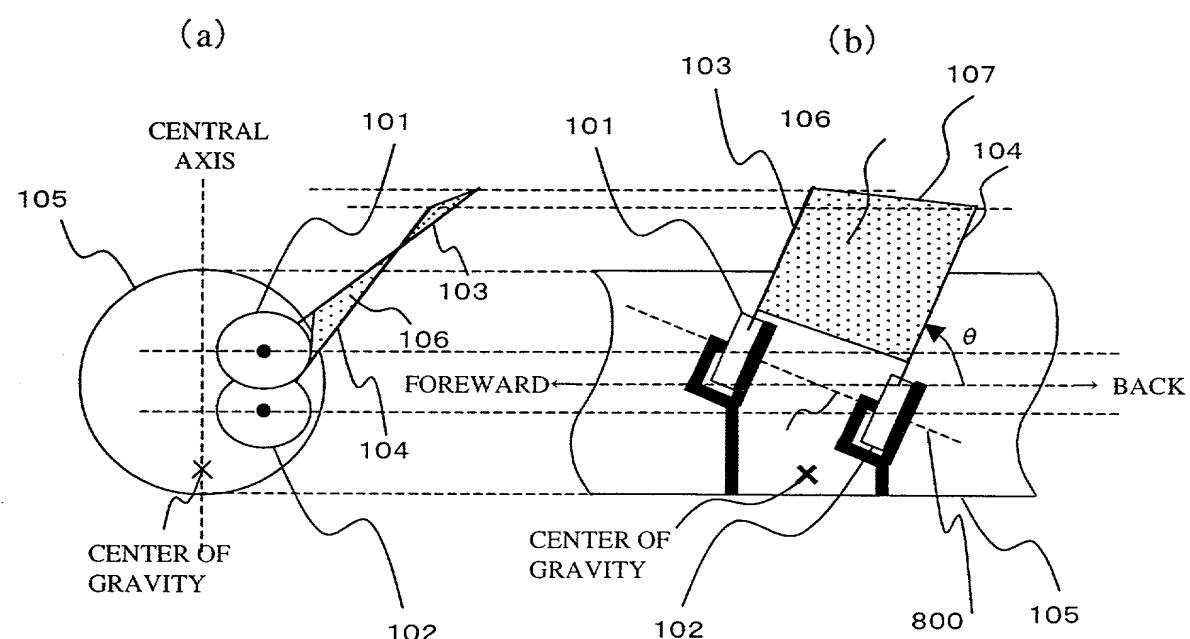
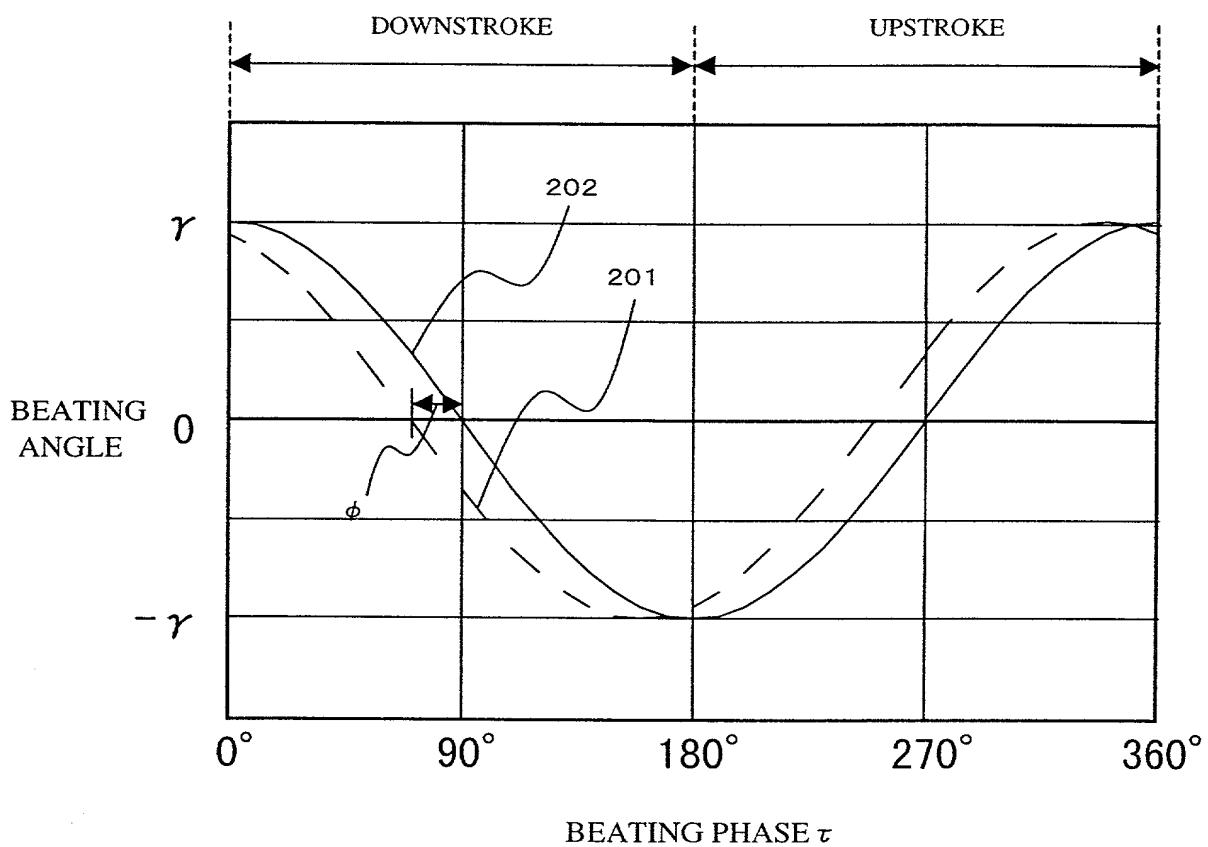


FIG.2



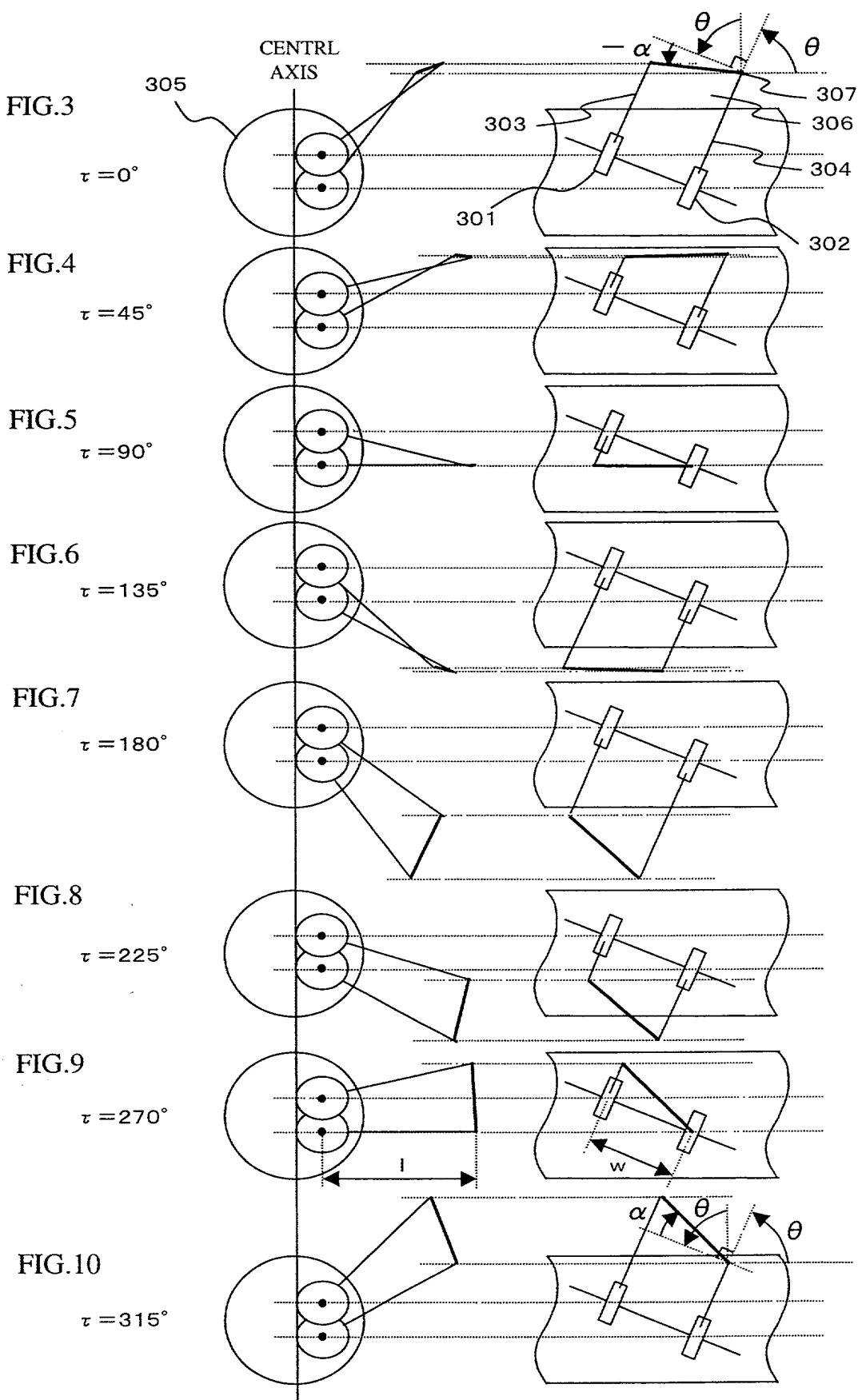


FIG.11

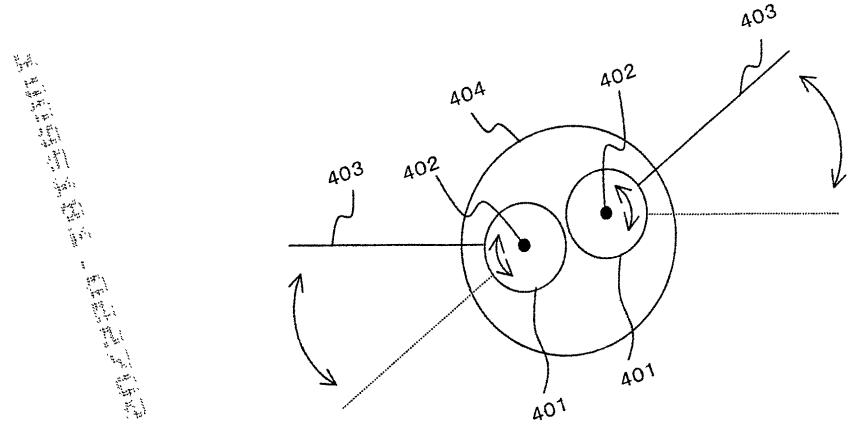


FIG.12

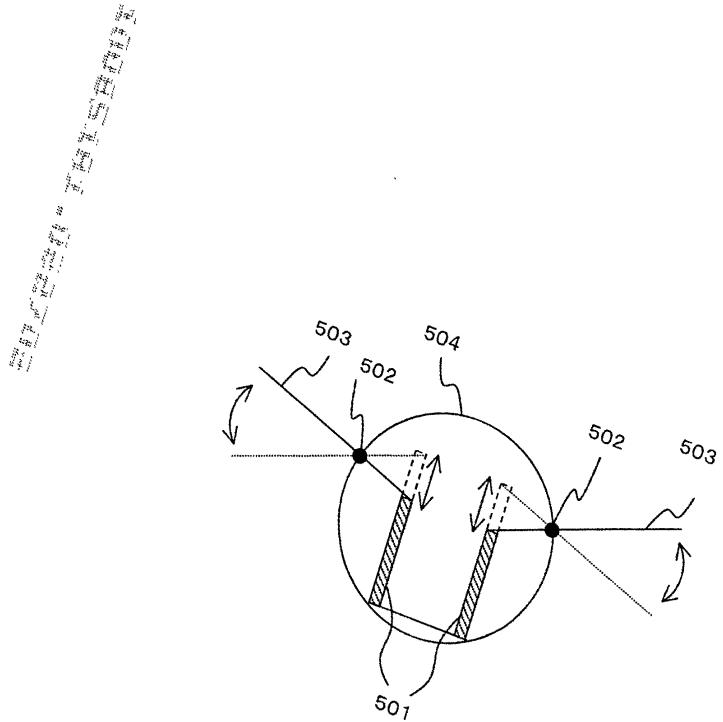


FIG.13

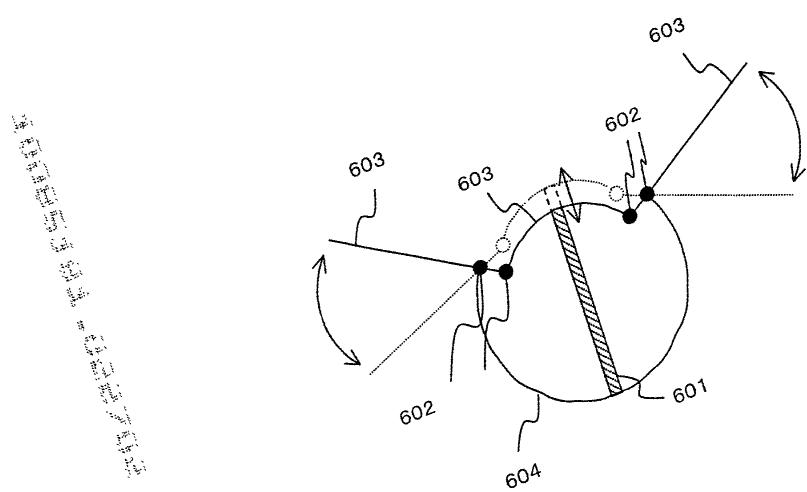


FIG.14

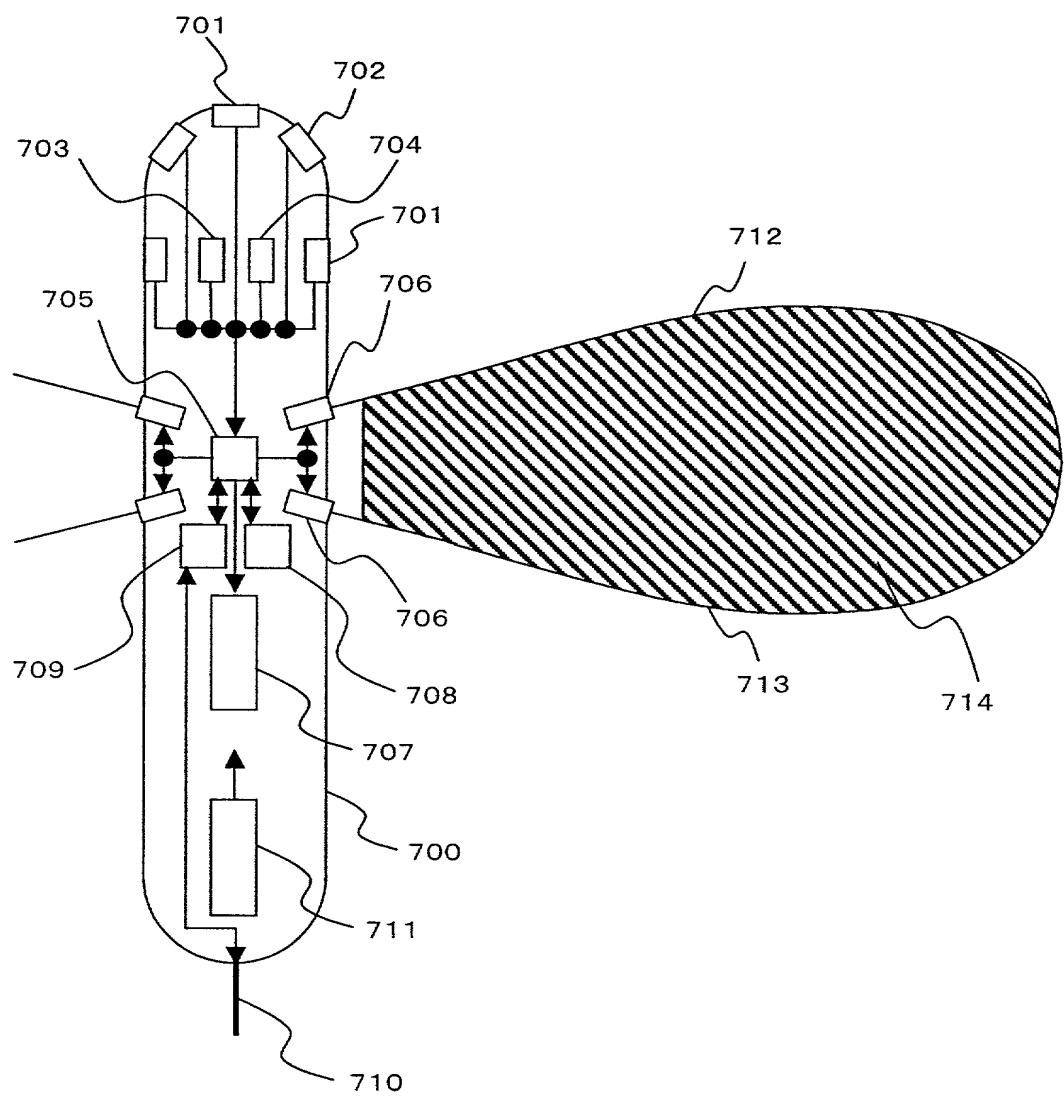


FIG.15

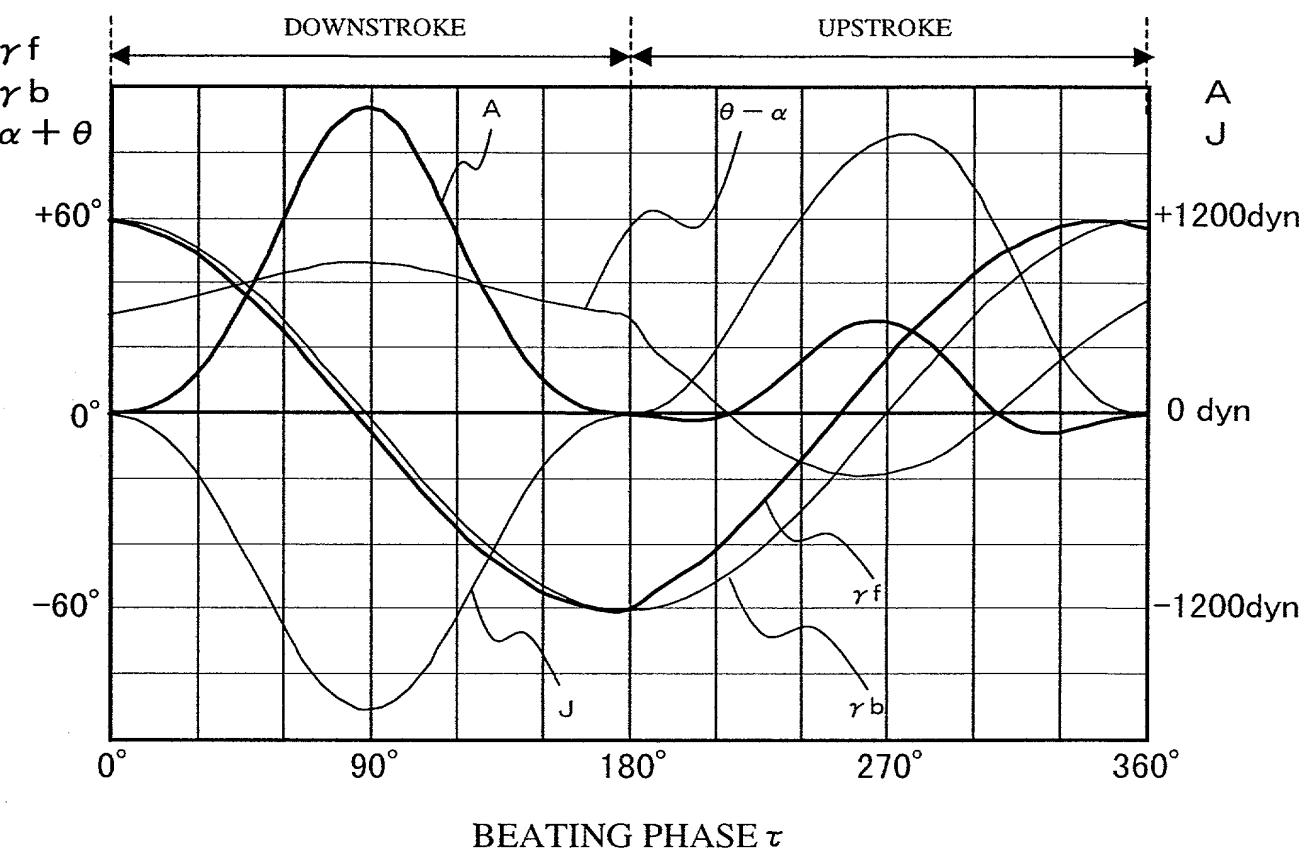
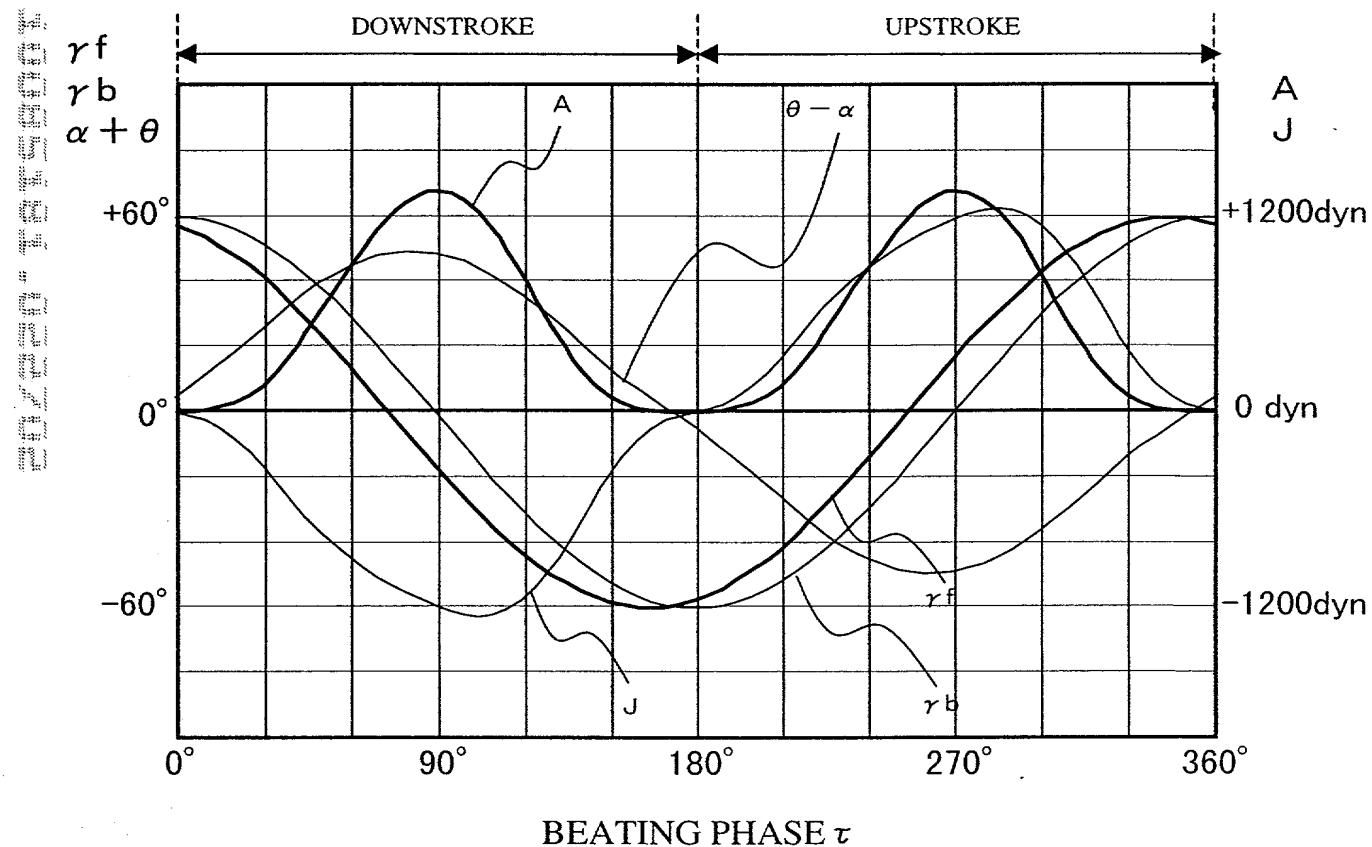


FIG.16



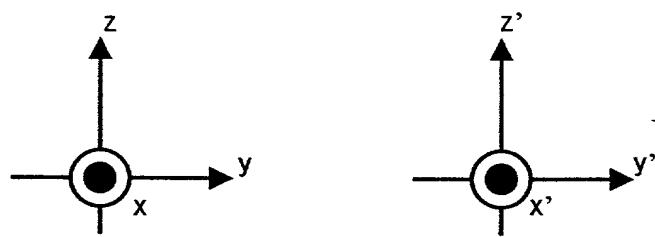
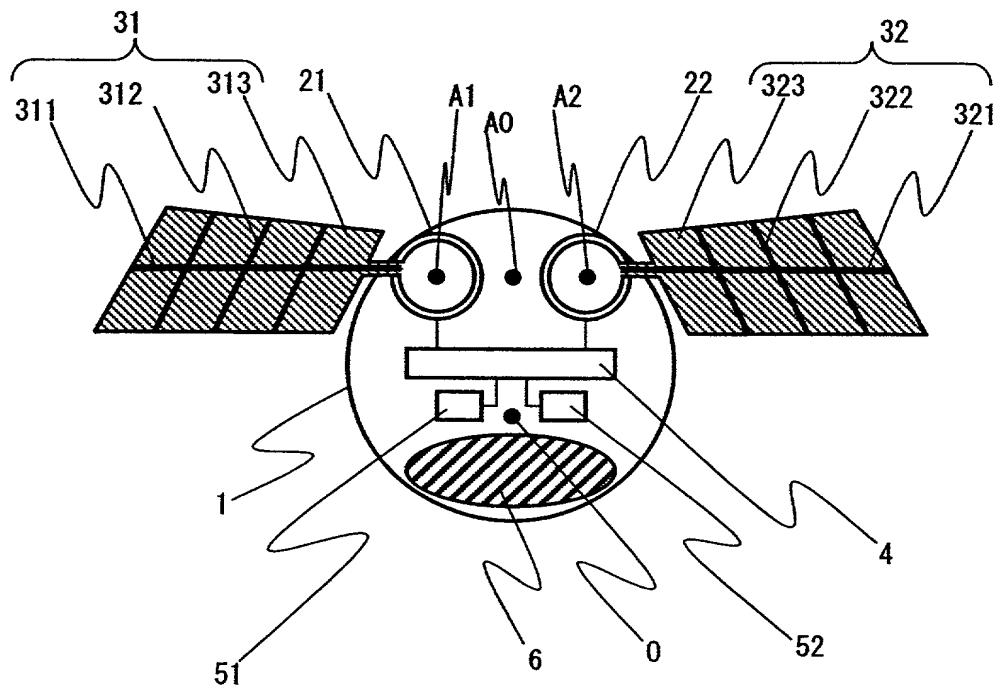


FIG. 17

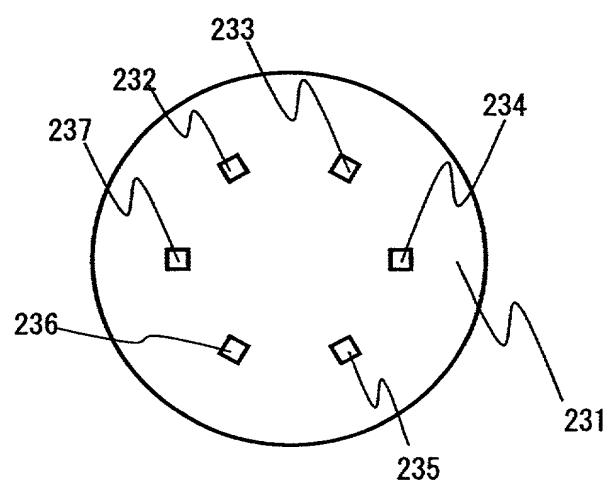


FIG. 18

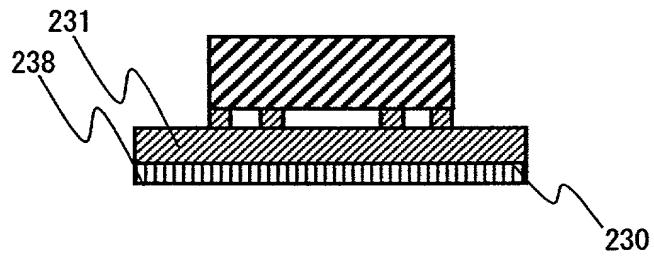


FIG. 19

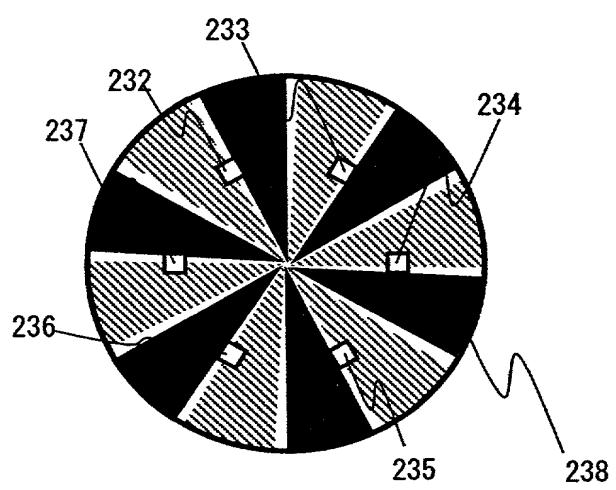


FIG. 20

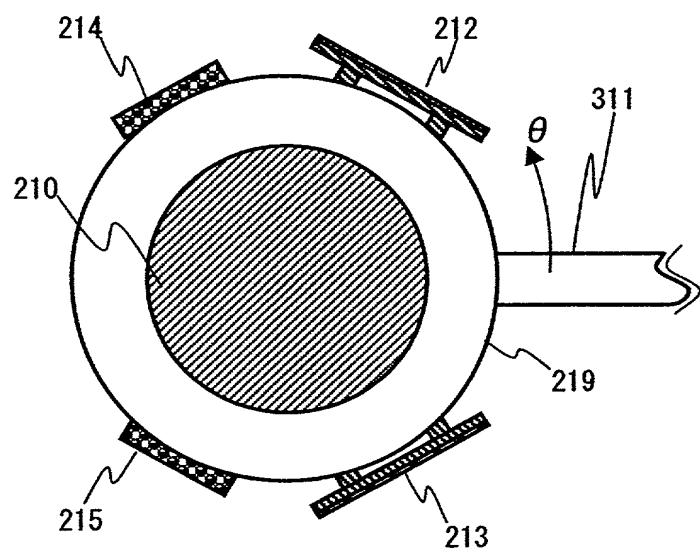


FIG. 21

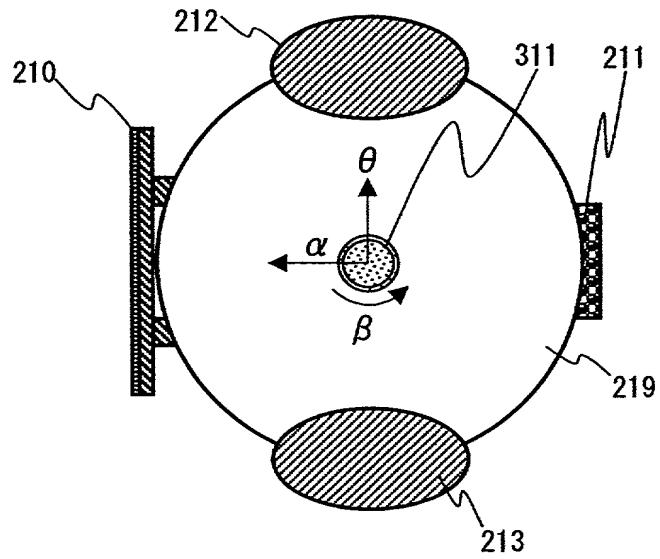


FIG. 22

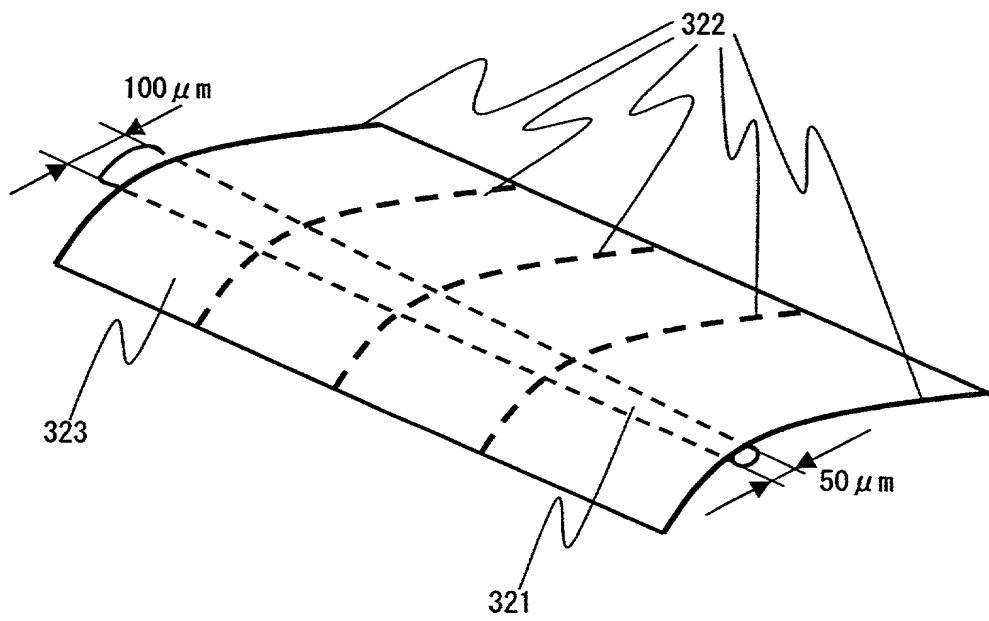


FIG. 23

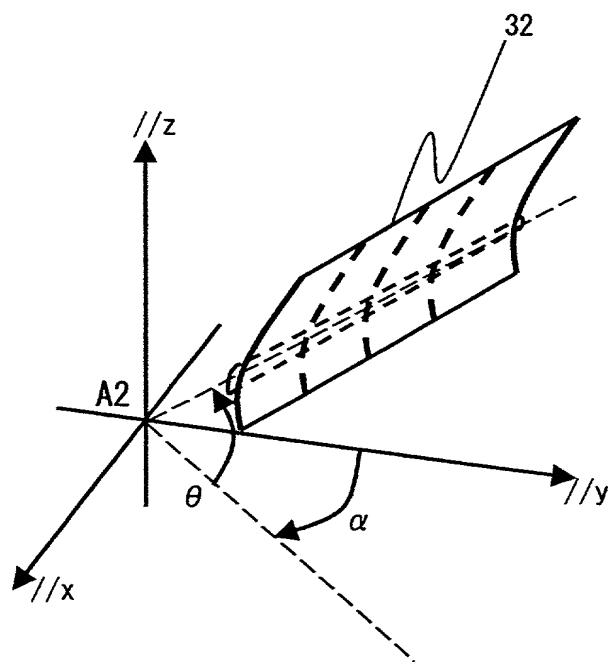


FIG. 24

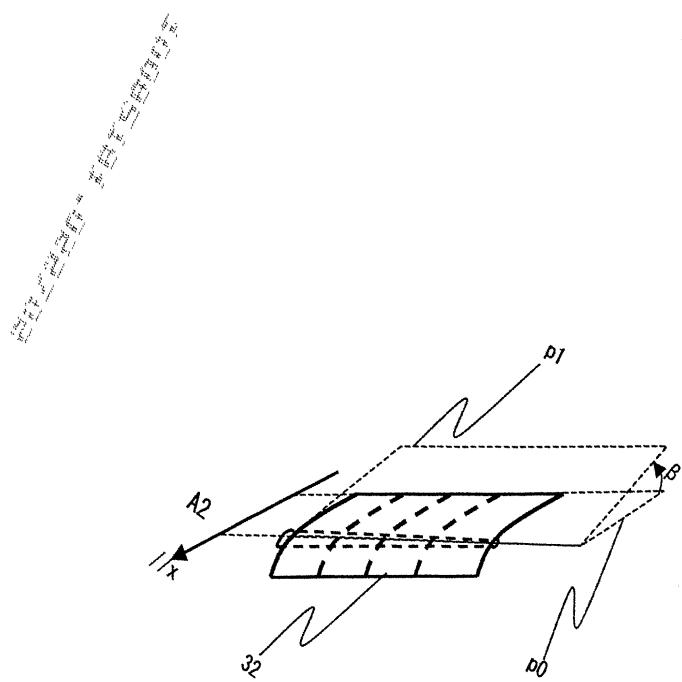


FIG. 25

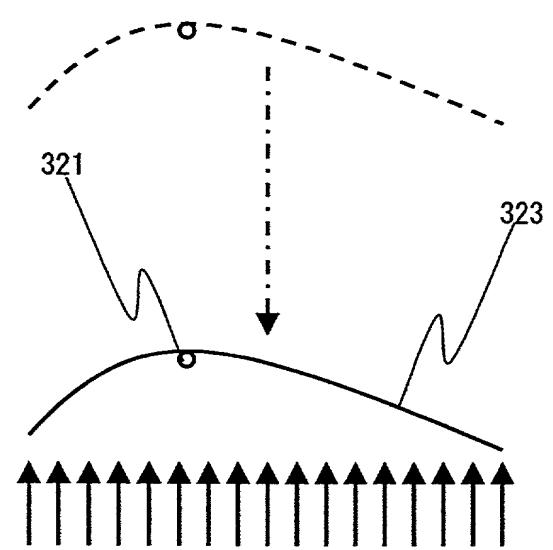


FIG. 26

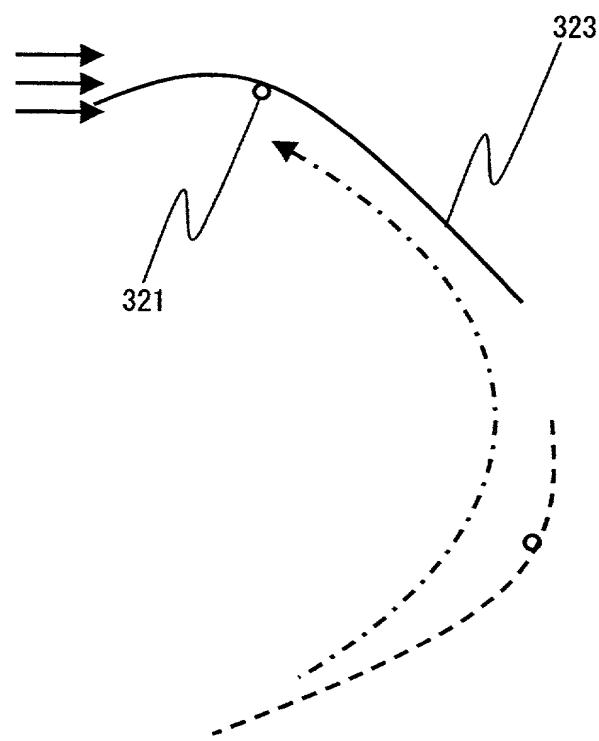


FIG. 27

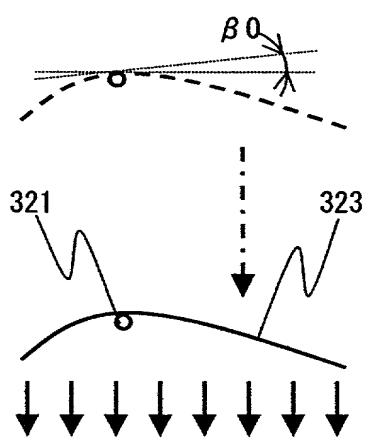


FIG. 28

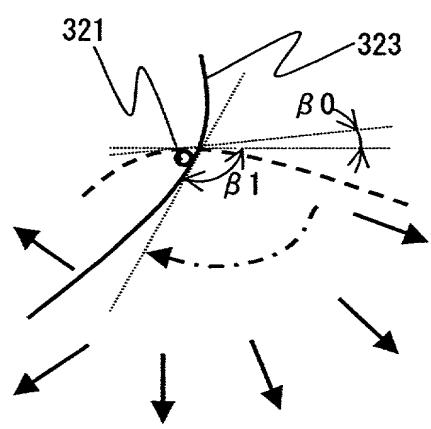


FIG. 29

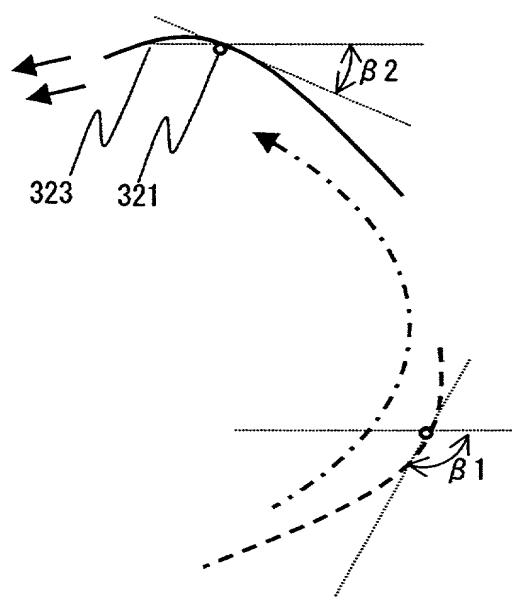


FIG. 30

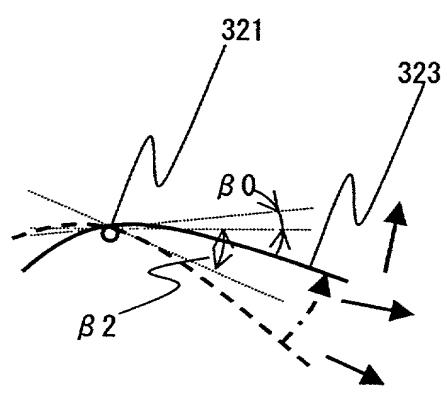


FIG. 31

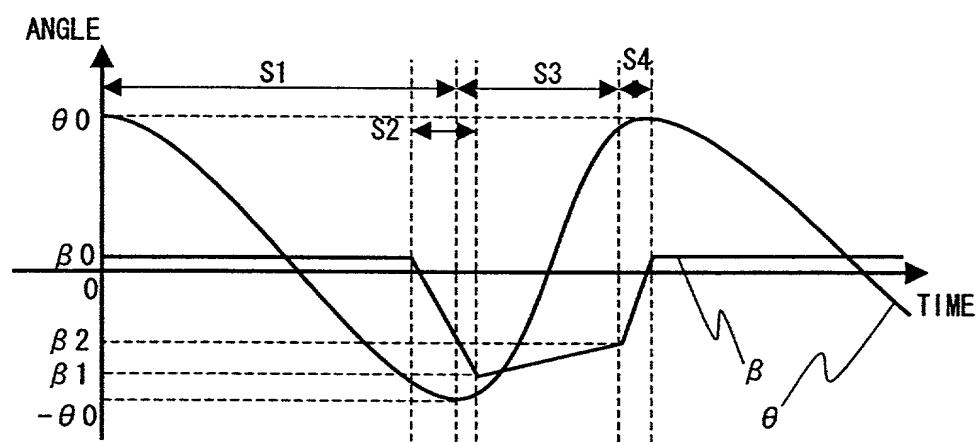


FIG. 32

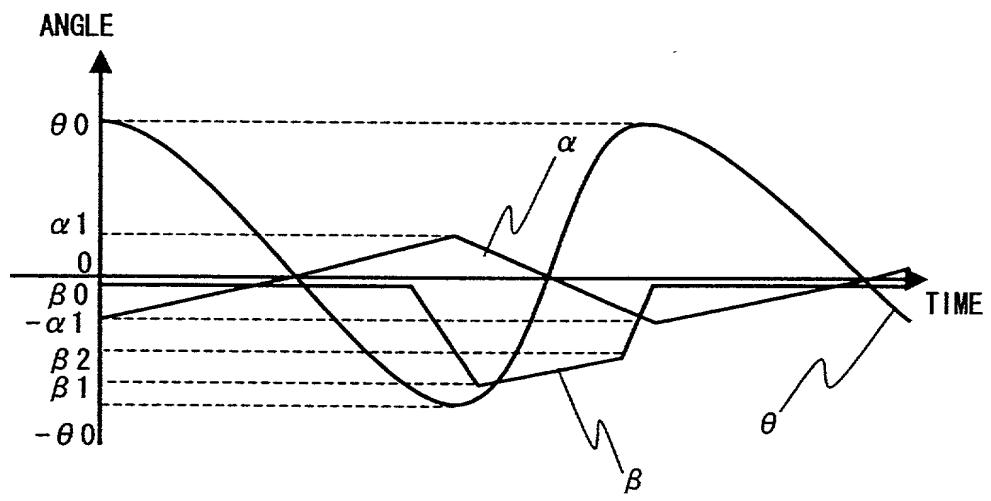


FIG. 33

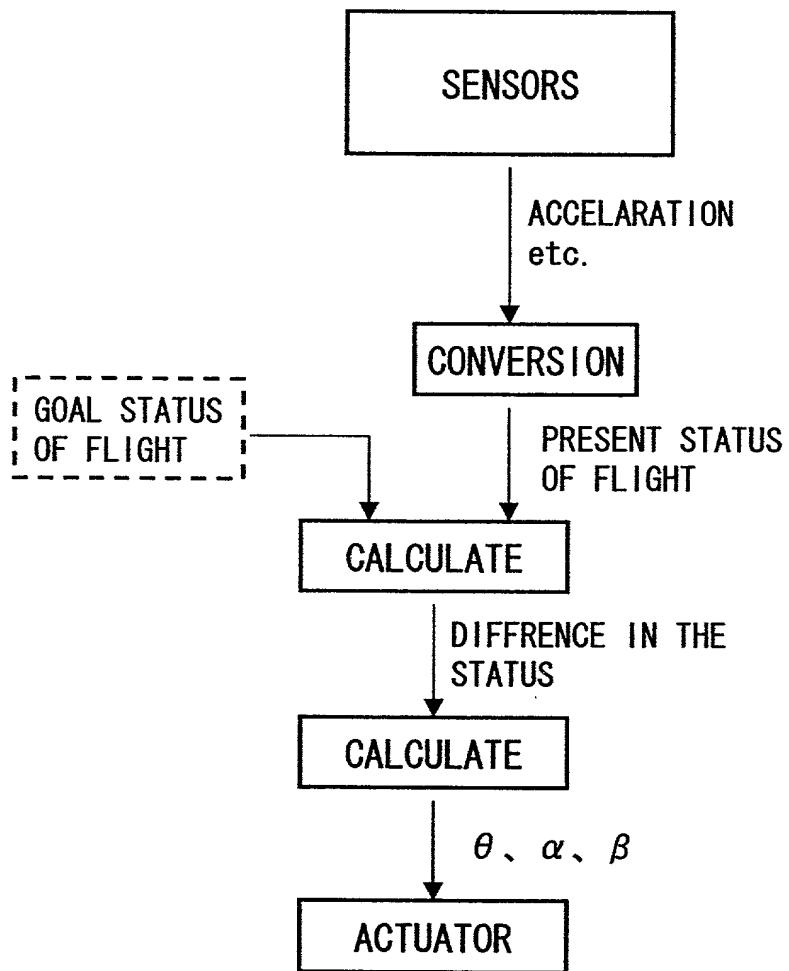


FIG. 34

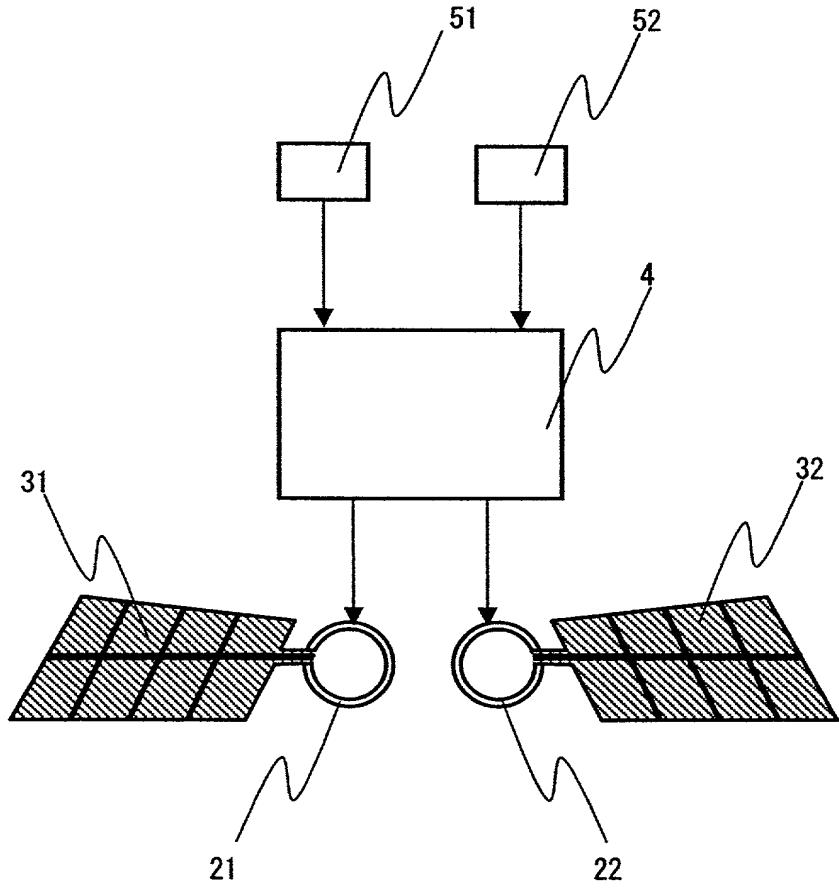


FIG. 35

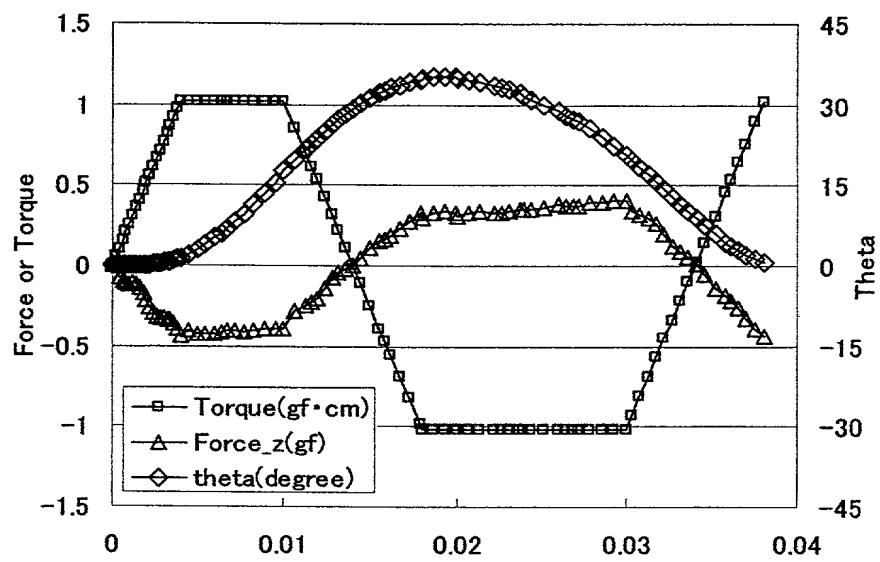


FIG. 36

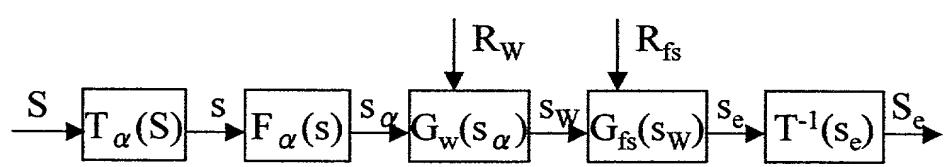


FIG. 37

	$x''$	$+x''$	$-z''$	$+z''$	$-\theta_y''$	$+\theta_y''$
S1	stroke $\theta \uparrow$			●		
	stroke $\theta \downarrow$			●		
	$-d\theta/dt \uparrow$		●			
	$-d\theta/dt \downarrow$			●		
	$-d\alpha/d\theta > d\alpha_{th}$	●				
	$-d\alpha/d\theta < d\alpha_{th}$	●				
	$\beta$ is about vertical to stroke direction.		●			
	$\beta$ is not vertical to stroke direction.			●		
	$\beta > 0$	●				
S2	$\beta < 0$	●				
	$-d\beta/dt \uparrow$	●	●		●	
S3	$-d\beta/dt \downarrow$		●	●		●
	stroke $\theta \uparrow$			●		
	stroke $\theta \downarrow$		●			
	$d\theta/dt \uparrow$			●		
	$d\theta/dt \downarrow$		●			
	$d\alpha/d\theta > d\alpha_{th}$	●				
	$d\alpha/d\theta < d\alpha_{th}$	●				
	$\beta$ is about vertical to stroke direction.				●	
S4	$\beta$ is not vertical to stroke direction.		●			
	$d\beta/dt \uparrow$	●			●	●
	$d\beta/dt \downarrow$		●	●		●

FIG. 38

	RIGHT ACTUATOR		LEFT ACTUATOR	
	DRIVING FREQ.	MOTION PATTERN	DRIVING FREQ.	MOTION PATTERN
UP	35Hz	B	35Hz	B
DOWN	25Hz	B	25Hz	B
GO FORWARD	30Hz	A	30Hz	A
HOVER	30Hz	B	30Hz	B
TURN RIGHT	30Hz	B	30Hz	A
TURN LEFT	30Hz	A	30Hz	B

FIG. 39

FIG.40

